REMARKS

This is a supplemental amendment filed in response to the discussions during the Examiner's interview held on September 18, 2007. This supplemental amendment corrects deficiencies in the claims filed in the amendment with request for continued examination (**RCE**) that was responsive to the final Office Action dated May 16, 2007 and the rejections in the final Office Action. However if this supplemental amendment arrives after the issuance of a further Office Action in response to the amendment dated August 14, 2007, then it should be considered a response to the further Office Action.

I. Sources for Support of the Claim Wording

The previously pending claims 17 to 31 were rejected under 35 U.S.C. 112, first paragraph, for failing to comply with the written description requirement in the final Office Action.

Claims 32 to 42 filed in the amendment dated December 5, 2006 replaced canceled claims 17 to 31.

Paragraph 2 of the final Office Action stated that the specification did not reasonably convey to one skilled in the art that the hollow glass body was made of an alkali-metal containing glass. The simultaneous amendment with RCE presented new claims 32 to 42 in which the method was limited to a hollow glass body having an inner surface from which at least one alkali compound was

released from the inner surface during thermal processing. In the REMARKS section of the simultaneous amendment it was pointed out that the second paragraph on page 2 and the last paragraph on page 4 provided support for this wording.

During the Examiner's interview the Examiner indicated this wording was still problematical because of the use of "at least one", which the last paragraph on page 4 of the specification did not appear to support.

The previously filed claims 32 to 42 have been amended to correct the foregoing deficiency by limiting the wording to these claims to the explicit wording of the last paragraph on page 4 of applicant's specification, specifically "at least one" has been replaced with "an". Also the source of the released alkali compound is limited to the inner surface of the hollow glass tube.

Also a new set of claims 46 to 49 have been filed, which are even more limited regarding the alkali compound. New independent method claims 46 and 48 contain the same limitations as the amended independent method claims 32 and 36 respectively and the additional limitations that the glass is limited to FIOLAX® of the composition recited in the last paragraph on page 9 of applicant's specification and the alkali compound released from the inner surface is limited to Na_2O, which is known to be released from the inner surface of such glass tubes.

Furthermore the last paragraph on page 9 of applicant's specification describes tests performed according to DIN ISO 4802-2 that show that the bottle made according to the claimed methods of the invention has an unexpectedly

lower release of Na_2O than conventional bottles in which the overpressure is not provided during thermal processing. This experimental result clearly supports a finding that the claimed methods of the invention, especially those of claims 46 to 49, are not obvious from any of the disclosures or combined disclosures of the prior art of record in the present application.

Furthermore there is explicit support in applicant's originally filed specification for the wording changes made in amended claims 32, 33, 34, 36, 37, 38, 40 to 42 as well as the corresponding wording in the new claims 46 to 49. The basis for the additional limitations in steps b) and c) of claim 32, 36, and 42 respectively is the disclosure in lines 8 to 10 of page 8 of applicant's specification. Note that applicant did not want to use the wording "lower bottom" and "upper bottom" in the claims because that is believed to be confusing. However the term "bottom" used in the claims means the "upper bottom" of page 8, line 10, of applicant's specification.

Also during the Examiner's interview it was pointed out that the term "closed bottom", which was originally used in method claims 32 to 42, did not appear in the applicant's originally filed specification. For that reason the term "closed bottom" was changed to "bottom" in the amended claims 32 to 42. Again the term "closed bottom" was intended to replace the somewhat confusing term "upper bottom" that appears on page 8, line 10, of the specification, but has now been changed to "bottom" because it refers to the bottom of the hollow glass tube that remains clamped in the bottle machine after the "connected tubing piece" is cutaway by cutting through the glass tube after it is initially clamped in the bottle

machine. The term "upper bottom" at page 8, line 10, of the specification and the term "bottom" used in claims 32, 36, 40, and 42 as well as the new claims 46 to 49 refer to the same element and mean the same thing.

To be sure, whether or not the "bottom" is closed during the "thermally cutting to length" (for basis of this step and other steps of claims 32, 36, etc, see the broad recitation of the applicant's method on page 5, first paragraph, of applicant's specification) is closed or not depends on the manner in which the thermally cutting through is performed, but when a torch is used it will be appreciated that the bottom is easily formed as a closed bottom.

The basis for the added step in amended claims 34 and 38 and in new dependent claims 47 and 49 is found at page 8, lines 11 to 12, of the applicant's originally filed specification.

For the foregoing reasons it is respectfully submitted that the wording of the above claims complies with the written description requirement under 35 U.S.C. 112, first paragraph.

Thus for the above reasons and for the reasons set forth in the amendment filed on August 14, 2007, it is respectfully submitted that new claims 43 to 49 and amended claims 32 to 42 should **not** be rejected under 35 U.S.C. 112, first paragraph, for failing to comply with the written description requirement.

II. The Above-identified Claims Particularly Point out and Distinctly Claim Applicant's Methods

Claims 17 to 25 and 30 to 31 were rejected under 35 U.S.C. 112, second paragraph, for indefiniteness.

Additional changes were made in the claim wording to address the concerns expressed in paragraphs 6 and 7 on page 3 of the final Office Action dated May 16, 2007.

The answers to the questions in paragraph 6 of the final Office Action are as follows: Yes, the glass tube that is initially clamped in the bottle machine does have a bottom. However this bottom is cut away when the glass tube is thermally cut to length because it is on the tubing piece that is cut away and discarded according to page 8, line 9, of applicant's specification. The "bottom" referred to in the claims is the bottom of the remaining portion of the glass tube that remains clamped in the bottle machine(designated the "upper bottom" on page 8), when the tube or tubing piece is cut off thermally and discarded. This interpretation is clearly supported by the disclosure in the first paragraph of page 8 of applicant's specification, so that the term "bottom" and associated wording regarding the tube or tubing piece in the amended claims is not indefinite.

The step that results in the complete formation of the small glass container, which was omitted from the new claims 32 to 42, has been included in amended dependent claims 34 and 38 and new dependent claims 43, 47, and 49. This step is the step of melting the glass tube through at a position corresponding to the height of the container after forming the mouth of the container at the bottom. The basis for this new step in the container formation in the claims is found at page 8, lines 11 to 12, of the applicant's originally filed specification.

Thus the claims now include all the steps that are required to form the

small bottles or ampoules that are recited on pages 8 and 9 of applicant's specification.

For the foregoing reasons and for the reasons set forth in the amendment filed on August 14, 2007, it is respectfully submitted that the amended claims 32 to 42 and the new claims 43 to 49 should not be rejected under 35 U.S.C. 112, second paragraph, for indefiniteness.

III. Withdrawn Glass Container Claims

If method claims are allowed, applicants reserve the right to amend the glass container claims so that they can be rejoined and allowed in accordance with the doctrine of rejoinder set forth in M.P.E.P. 821.04.

IV. OBVIOUSNESS REJECTION OF CLAIMS FOR THE EMBODIMENT OF FIG. 2

In the embodiment of fig. 2 the overpressure that suppresses release of the alkali compound, particularly Na_2O, from the inner surface of the hollow glass tube is produced with a stopper provided with a through-going hole that is inserted in the upper open end of the hollow glass tube that is clamped in the bottle machine. Amended claims 32 to 35, amended claims 40 and 41 and new claims 46 and 47 are limited to the embodiment of fig. 2 in which the overpressure is produced by the stopper with the through hole. This embodiment of the method is a simple rapid and economical way to produce the overpressure in the hollow glass tube during thermal processing.

In the final Office Action claims 18 and 29 were the only canceled, i.e.

prior pending, claims that were limited to this embodiment.

Claims 18 and 29 in the final Office Action were rejected as obvious under 35 U.S.C. 103 (a) over Ritt, et al (US '998), in view of Bennett, et al (US '535), and in further view of Schul (US '022) or Mueller, et al (US '239), and further in view of Leber, et al (US '343).

Thus this section of the REMARKS provides reasons for **not** rejecting amended claims 32 to 35, amended claims 40 and 41, and new claims 46 and 47, which are limited to the embodiment of fig. 2, as obvious under 35 U.S.C. 103 (a) over Ritt, et al (US '998), in view of Bennett, et al (US '535), and in further view of Schul (US '022) or Mueller, et al (US '239), and further in view of Leber, et al (US '343).

First the reasons for withdrawal of the obviousness rejection of claims 18 and 29 provided on pages 20 to 22 of the amendment dated August 14, 2007, which are also applicable to the claims of this supplemental amendment, are explicitly incorporated by reference thereto.

Leber, et al, is the only reference cited that discloses use of a stopper (plug 10) during the processing of a hollow glass body to produce a glass rod. A vacuum-tight tube connected to a vacuum pump 9 is passed through the stopper so that an under-pressure or a low pressure is produced within the interior of the hollow glass body in order to draw the glass rod from a spur 8 formed in the body as shown in the figure of US '343 (column 4, lines 20 to 25, of US '343).

How does drawing a vacuum in a <u>closed</u> hollow glass tube through a stopper in one end of the tube make using a stopper with a through-going hole in

it to help produce an overpressure in an open hollow glass tube obvious? These two different method steps are the opposite from each other because they have opposite end results!

Leber, et al, teaches producing a low pressure below atmospheric pressure using a stopper (plug) with a hole, not an overpressure as claimed in applicant's claims. Thus, Leber, et al, contains teaching of doing the opposite from the claimed invention. A prior art reference that contains teaching of doing the opposite from the claimed invention cannot be combined with other references under 35 U.S.C. 103 (a) to reject the claimed invention as obvious. See M.P.E.P. 2145 X and, for example, the Federal Circuit Court of Appeals has said:

> "In determining whether such a suggestion [of obviousness] can fairly be gleaned from the prior art...It is indeed pertinent that these references teach against the present invention. Evidence that supports, rather than negates, patentability must be fairly considered." ***In re Dow Chemical Co.,*** 837 F.2nd 469,473, 5 U.S.P.Q.2d 1529, 1532 (Fed.Cir. 1988)

Furthermore Leber, et al, do not disclose or suggest the functionally defined pressure range of the above amended and new claims. Leber, et al, do not disclose or suggest a step of producing an overpressure that is sufficiently large to reduce release of an alkali compound from the interior surface of the hollow glass body but sufficiently low to avoid damage to the hollow glass body.

Furthermore Leber, et al, do suggest the modifications of Ritt, et al, and the other references including Bennett, et al, that are necessary to arrive at the subject matter of the above cited claims 32 to 35, 40, 41, 46, and 47. Ritt, et al,

discloses a method of thermally processing hollow glass tubes to form vials or ampoules. However Ritt, et al, does not disclose maintaining an overpressure in the hollow glass tubes during **all** the steps of thermal processing. For example, column 2, lines 30 to 40, of Ritt, et al, teach that the ends of a length of glass tubing are heated (thermally processed) to close them, thus forming a glass tube with closed ends, which is the starting point for the method claimed in independent method claims 1 and 6 of Ritt, et al (claim 1, line 5, & claim 6, lines 4 to 5, of US '998). There is no teaching or suggestion that an overpressure should be produced in the glass tubes during this initial step to prevent an unrestrained release of e.g. Na_2O from a Na_2O-containing glass, which would occur during the high temperatures required to close the ends of the glass tube.

In contrast according to the applicant's amended and new claims above, e.g. amended claim 32, a stopper with a hole is placed in a glass tube that is open at both ends to produce an overpressure during thermal processing. However the steps of thermally cutting the glass tube to length and thermally opening the bottom formed by the cutting to length are thermal processing steps. Thus according to applicant's method as it is now claimed the stopper with the hole is present during all the thermal processing steps that are required to perform the claimed method. This differs from US '998 because the dot-shaped opening is not present during the required step of closing the ends of the length of glass tubing described in column 2, lines 30 to 40, which is basically the only way to arrive at the starting point of the claimed process in claims 1 and 6 of US '998.

US '998 clearly teaches that the dot-shaped opening 12 that is provided in the closed hollow glass tube is provided after the ends have been closed in column 2, lines 40 to 41.

In addition, the claimed method using the stopper with the hole is more convenient, requires less work and is more economical than the production of the glass containers using a tube that is first closed at both ends and is provided with the dot-shaped opening.

The ampoule of Bennett, et al, is entirely different because it is not a closed glass container, but instead is closed by a plunger 10 (column 1, line 66, fig. 1). Thus the processing steps are not adapted to make a closed glass container. The processing is entirely different because the glass tube is not clamped in a vertically oriented position and the lower end is not heated. The only common feature of Bennett, et al, and applicant's claimed method is that a glass tube made of borosilicate glass containing alkali compounds is used to make the glass containers in applicant's preferred embodiment.

One cannot conclude that using the process of Ritt, et al, to make glass containers with a hollow glass tube made of the aluminosilicate glass of Bennett, et al, would reduce the alkali contamination of the resulting glass containers because, as pointed out above, Ritt, et al, does not produce an overpressure in the hollow tube during all thermal processing steps required to make the glass containers. Ritt, et al, requires a glass tube that is closed at both ends to start the method claimed in claims 1 and 6 of Ritt, et al, but this glass tube with the closed ends is produced by thermally cutting it out of a longer glass tube. During this

step of thermally cutting there is no means to produce the overpressure and hence alkali compounds are released in an unrestrained manner from the inner surface of the hollow glass tube.

For the foregoing reasons it is respectfully submitted that claims 32 to 35, 40, 41, 46, and 47 should **not** be rejected under 35 U.S.C. 103 (a) over Ritt, et al, in view of Bennett, et al, and in further view of Schul or Mueller, et al, and further in view of Leber, et al.

V. OBVIOUSNESS REJECTION OF CLAIMS FOR THE EMBODIMENT OF FIG. 1

In the embodiment of fig. 1 the overpressure that suppresses release of the alkali compound, particularly Na_2O, from the inner surface of the hollow glass tube is produced by blowing gas into the upper end of the hollow glass tube to produce the overpressure during thermal processing. Amended claims 36 to 39, amended claim 42 and 43 and new claims 48 and 49 are limited to the embodiment of fig. 1 in which the overpressure is produced by blowing gas into the upper end of the hollow glass tube during thermal processing. This embodiment of the method is a simple and rapid way to produce the overpressure in the hollow glass tube during thermal processing.

In the final Office Action claims 22 and 27 were the only canceled, i.e. prior pending, claims that were limited to this embodiment.

Claims 22 and 27 in the final Office Action were rejected as obvious under 35 U.S.C. 103 (a) over Ritt, et al (US '998), in view of Bennett, et al (US '535),

and in further view of Schul (US '022) or Mueller, et al (US '239).

Thus this section of the REMARKS provides reasons for **not** rejecting claims 36 to 39, 42, 43, 48 and 49, which are limited to the embodiment of fig. 1, as obvious under 35 U.S.C. 103 (a) over Ritt, et al (US '998), in view of Bennett, et al (US '535), and in further view of Schul (US '022) or Mueller, et al (US '239).

As noted above, the claimed method of Ritt, et al, (in claims 1 and 6) starts with a glass tube that is closed at both ends which optionally contains a dot-shaped opening adjacent a sealed bottom end (claim 2 of Ritt, et al). However the only disclosure of the manner in which the starting glass tube with the closed ends is prepared in Ritt, et al, in column 2, lines 30 to 43, states that the dot-shaped opening is formed after the ends of the tube section are closed by thermal processing, i.e. the softened ends that are heated by burners are drawn out by an axial force. During the formation of the closed ends by thermal processing there is no suppression of alkali release from the inner surface of the glass tubes because there is no means to produce an overpressure in the glass tube during closing of the initially open ends of the glass tube no disclosed constriction of the other end of any type according to column 2 of Ritt, et al.

Bennett, et al, only teaches the type of glass that is preferred for applicant's method, but otherwise does not supply a suggestion of the modifications of Ritt, et al, that are necessary to obtain the claimed invention.

Schul or Mueller teach supplying an internal gas overpressure within a hollow glass body that is being shaped by thermal processing, but that is an entirely different purpose from the applicant's claimed invention or from the

purpose of Ritt, et al.

Schul or Mueller would **not** suggest to one skilled in the art that an overpressure should be provided in the open hollow glass tube of Ritt, et al, while the ends of the open hollow glass tube are being closed by thermal processing.

Furthermore see the additional argumentation in the amendment filed on August 14, 2007 with respect to this claimed subject matter. Schul or Mueller do not disclose or suggest using a blower to blow gas into the open upper end of the glass tube that is being processed thermally to make the small glass containers.

According to many U. S. judicial opinions for a valid rejection under 35 U.S.C. 103 there must be some hint or suggestion in the prior art of the modifications of the disclosure in a prior art reference or references used to reject the claimed invention, which are necessary to arrive at the claimed invention. For example, the Court of Appeals for the Federal Circuit has said:

> "Rather, to establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant...Even when obviousness is based on as single reference there must be a showing of a suggestion of motivation to modify the teachings of that reference.." ***In re Kotzab***, 55 U.S.P.Q. 2nd 1313 (Fed. Cir. 2000). See also M.P.E.P. 2141

There is no suggestion in the prior art of record to modify the <u>required</u> step of providing an overpressure in the open hollow glass tube of Ritt, et al, during thermal processing to produce the glass tube that has both ends closed, which is the starting point for their claimed method according to claims 1 and 6 in any of

the secondary references, especially Bennet, et al, Schul and Mueller.

Also none of the references teach blowing gas into the upper open end of the glass tube in order to produce the overpressure.

For the foregoing reasons it is respectfully submitted that claims 36 to 39, 42, 43, 48 and 49 should **not** be rejected under 35 U.S.C. 103 (a) over Ritt, et al, in view of Bennett, et al, and in further view of Schul or Mueller, et al.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549-4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,

Michael J. Striker,
Attorney for the Applicant
Reg. No. 27,233